Sequence Listing was accepted.

If you need help call the Patent Electronic Business Center at (866) 217-9197 (toll free).

Reviewer: Durreshwar Anjum

Timestamp: [year=2009; month=4; day=25; hr=13; min=28; sec=13; ms=988;]

Sequence Listing was accepted.

If you need help call the Patent Electronic Business Center at (866) 217-9197 (toll free).

Reviewer: Durreshwar Anjum

Timestamp: [year=2009; month=4; day=25; hr=13; min=26; sec=26; ms=876;]

Sequence Listing was accepted.

If you need help call the Patent Electronic Business Center at (866) 217-9197 (toll free).

Reviewer: Durreshwar Anjum

Timestamp: [year=2009; month=4; day=25; hr=13; min=23; sec=45; ms=526;]

Sequence Listing was accepted.

If you need help call the Patent Electronic Business Center at (866) 217-9197 (toll free).

Reviewer: Durreshwar Anjum

Timestamp: [year=2009; month=4; day=25; hr=13; min=17; sec=8; ms=814;]

Validated By CRFValidator v 1.0.3

Application No: 10522388 Version No: 1.0

Input Set:

Output Set:

Started: 2009-04-14 15:12:17.444 **Finished:** 2009-04-14 15:12:19.194

Elapsed: 0 hr(s) 0 min(s) 1 sec(s) 750 ms

Total Warnings: 16
Total Errors: 0

No. of SeqIDs Defined: 29

Actual SeqID Count: 29

Erro	or code	Error Descript	ion								
W	213	Artificial	or	Unknown	found	in	<213>	in	SEQ	ID	(1)
W	213	Artificial	or	Unknown	found	in	<213>	in	SEQ	ID	(2)
W	213	Artificial	or	Unknown	found	in	<213>	in	SEQ	ID	(3)
W	213	Artificial	or	Unknown	found	in	<213>	in	SEQ	ID	(4)
W	213	Artificial	or	Unknown	found	in	<213>	in	SEQ	ID	(5)
W	213	Artificial	or	Unknown	found	in	<213>	in	SEQ	ID	(6)
W	213	Artificial	or	Unknown	found	in	<213>	in	SEQ	ID	(7)
W	213	Artificial	or	Unknown	found	in	<213>	in	SEQ	ID	(8)
W	213	Artificial	or	Unknown	found	in	<213>	in	SEQ	ID	(9)
W	213	Artificial	or	Unknown	found	in	<213>	in	SEQ	ID	(10)
W	213	Artificial	or	Unknown	found	in	<213>	in	SEQ	ID	(11)
W	213	Artificial	or	Unknown	found	in	<213>	in	SEQ	ID	(15)
W	213	Artificial	or	Unknown	found	in	<213>	in	SEQ	ID	(20)
W	213	Artificial	or	Unknown	found	in	<213>	in	SEQ	ID	(27)
W	213	Artificial	or	Unknown	found	in	<213>	in	SEQ	ID	(28)
W	213	Artificial	or	Unknown	found	in	<213>	in	SEQ	ID	(29)

SEQUENCE LISTING

<110>	Ross, Richard	
	Sayers, Jon	
	Artymiuk, Peter	
<120>	Cytokine Polypeptides and Antiboidies Containing A Signal	
	Sequence for the Attachment of Glycosylphosphatidyinositol	
<130>	100042.59316US	
<140>	10522388	
<141>	2009-04-14	
<150>	10/552,388	
<151>	2005-10-07	
<150>	PCT/GB04/001572	
<151>	2004-04-07	
<150>	GB 0324235.1	
<151>	2003-10-16	
<150>		
<151>	2003-04-09	
<160>	29	
-170-		
<170>	PatentIn version 3.5	
<210>	1	
<211>	794	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	fusion protein comprising growth hormone fused to domain	
	comprising glycosylphosphatidyinositol	
<400>	1	
ggatcc	tcta gactcgaggt cctacaggta tggatctctg gcagctgctg ttgaccttgg	60
cactgg	cagg atcaagtgat geteatatgt teecaaceat teeettatee aggetttttg	120
		7.00
acaacg	ctag teteegegee categtetge accagetgge etttgacace taccaggagt	180
++α>>α	aagc ctatatccca aaggaacaga agtattcatt cctgcagaac ccccagacct	240
ttgaag	aage craraceeda aaggaacaga agraricari eergeagaac eeeeagaeer .	240
ccctctc	gttt ctcagagtct attccgacac cctccaacag ggaggaaaca caacagaaat	300
000000	geee dedagageee accordance decodadag ggaggaaada daadagaaac	300
ccaacc	taga getgeteege ateteeetge tgeteateea gtegtggetg gageeegtge	360
agttcc	tcag gagtgtcttc gccaacagcc tggtgtacgg cgcctctgac agcaacgtct	420
atgacc	tcct aaaggaccta gaggaaggca tccaaacgct gatggggagg ctggaagatg	480

gcagcccccg gactgggcag atcttcaagc agacctacag caagttcgac acaaactcac 540

acaacgatga cgcactactc aagaactacg ggctgctcta ctgcttcagg aaggacatgg	600
acaaggtcga gacattcctg cgcatcgtgc agtgccgctc tgtggagggc agctgtggct	660
tcggcggtgg aggggatatc gacaagctgg tcaagtgtgg cggcataagc ctgctggttc	720
agaacacatc ctggatgctg ctgctgctgc tttccctctc cctcctcaa gccctagact	780
tcatttctct gtga	794
<210> 2 <211> 254	
<211> 234 <212> PRT	
<213> Artificial Sequence	
<220>	
<223> fusion protein comprising growth hormone fused to a	
glycosylphosphatidyinositol domain	
<400> 2	
Met Asp Leu Trp Gln Leu Leu Thr Leu Ala Leu Ala Gly Ser Ser	
1 5 10 15	
Asp Ala His Met Phe Pro Thr Ile Pro Leu Ser Arg Leu Phe Asp Asn	
20 25 30	
Ala Ser Leu Arg Ala His Arg Leu His Gln Leu Ala Phe Asp Thr Tyr	
35 40 45	
Gln Glu Phe Glu Glu Ala Tyr Ile Pro Lys Glu Gln Lys Tyr Ser Phe	
50 55 60	
Leu Gln Asn Pro Gln Thr Ser Leu Cys Phe Ser Glu Ser Ile Pro Thr	
65 70 75 80	
Pro Ser Asn Arg Glu Glu Thr Gln Gln Lys Ser Asn Leu Glu Leu	
85 90 95 	
Arg Ile Ser Leu Leu Ile Gln Ser Trp Leu Glu Pro Val Gln Phe 100 105 110	
Lou Arg Cor Wal Dho Ala Aga Cor Lou Wal Two Clar Ala Car Aga Car	
Leu Arg Ser Val Phe Ala Asn Ser Leu Val Tyr Gly Ala Ser Asp Ser 115 120 125	

Asn Val Tyr Asp Leu Leu Lys Asp Leu Glu Glu Gly Ile Gln Thr Leu

Met Gly Arg Leu Glu Asp Gly Ser Pro Arg Thr Gly Gln Ile Phe Lys 145 150 155 160
Gln Thr Tyr Ser Lys Phe Asp Thr Asn Ser His Asn Asp Asp Ala Leu 165 170 175
Leu Lys Asn Tyr Gly Leu Leu Tyr Cys Phe Arg Lys Asp Met Asp Lys 180 185 190
Val Glu Thr Phe Leu Arg Ile Val Gln Cys Arg Ser Val Glu Gly Ser 195 200 205
Cys Gly Phe Gly Gly Gly Asp Ile Asp Lys Leu Val Lys Cys Gly 210 215 220
Gly Ile Ser Leu Leu Val Gln Asn Thr Ser Trp Met Leu Leu Leu Leu 225 230 235 240
Leu Ser Leu Ser Leu Leu Gln Ala Leu Asp Phe Ile Ser Leu 245 250
<210> 3 <211> 1607 <212> DNA <213> Artificial Sequence
<220> <223> fusion protein comprising growth hormone fused to growth hormone receptor
<400> 3 ggatcctcta gactcgaggt cctacaggta tggatctctg gcagctgctg ttgaccttgg 60
cactggcagg atcaagtgat gctcatatgt tcccaaccat tcccttatcc aggctttttg 120
acaacgctag tctccgcgcc catcgtctgc accagctggc ctttgacacc taccaggagt 180
ttgaagaagc ctatatccca aaggaacaga agtattcatt cctgcagaac ccccagacct 240
ccctctgttt ctcagagtct attccgacac cctccaacag ggaggaaaca caacagaaat 300
ccaacctaga getgeteege ateteeetge tgeteateea gtegtggetg gageeegtge 360
agttcctcag gagtgtcttc gccaacagcc tggtgtacgg cgcctctgac agcaacgtct 420
atgaceteet aaaggaceta gaggaaggea tecaaaeget gatggggagg etggaagatg 480

gcagcccccg gactgggcag atcttcaagc agacctacag caagttcgac acaaactcac 540

acaacgatga	cgcactactc	aagaactacg	ggctgctcta	ctgcttcagg	aaggacatgg	600
acaaggtcga	gacattcctg	cgcatcgtgc	agtgccgctc	tgtggagggc	agctgtggct	660
teggeggeeg	cggtggcgga	ggtagtggtg	gcggaggtag	cggtggcgga	ggttctggtg	720
gcggaggttc	cgaattcttt	tctggaagtg	aggccacagc	agctatcctt	agcagagcac	780
cctggagtct	gcaaagtgtt	aatccaggcc	taaagacaaa	ttcttctaag	gagcctaaat	840
tcaccaagtg	ccgttcacct	gagcgagaga	ctttttcatg	ccactggaca	gatgaggttc	900
atcatggtac	aaagaaccta	ggacccatac	agctgttcta	taccagaagg	aacactcaag	960
aatggactca	agaatggaaa	gaatgccctg	attatgtttc	tgctggggaa	aacagctgtt	1020
actttaattc	atcgtttacc	tccatctgga	taccttattg	tatcaagcta	actagcaatg	1080
gtggtacagt	ggatgaaaag	tgtttctctg	ttgatgaaat	agtgcaacca	gatccaccca	1140
ttgccctcaa	ctggacttta	ctgaacgtca	gtttaactgg	gattcatgca	gatatccaag	1200
tgagatggga	agcaccacgc	aatgcagata	ttcagaaagg	atggatggtt	ctggagtatg	1260
aacttcaata	caaagaagta	aatgaaacta	aatggaaaat	gatggaccct	atattgacaa	1320
catcagttcc	agtgtactca	ttgaaagtgg	ataaggaata	tgaagtgcgt	gtgagatcca	1380
aacaacgaaa	ctctggaaat	tatggcgagt	tcagtgaggt	gctctatgta	acacttcctc	1440
agatgagcca	atttacatgt	gaagaagatt	tctacggcgg	tggaggggat	atcgacaagc	1500
tggtcaagtg	tggcggcata	agectgctgg	ttcagaacac	atcctggatg	ctgctgctgc	1560
tgctttccct	ctccctcctc	caagccctag	acttcatttc	tctgtga		1607

<210> 4

<211> 525

<212> PRT

<213> Artificial Sequence

<220>

 $<\!\!223\!\!>$ fusion protein comprising growth hormone fused to growth hormone receptor

<400> 4

Met Asp Leu Trp Gln Leu Leu Leu Thr Leu Ala Leu Ala Gly Ser Ser $1 \hspace{1.5cm} 5 \hspace{1.5cm} 10 \hspace{1.5cm} 15$

Asp Ala His Met Phe Pro Thr Ile Pro Leu Ser Arg Leu Phe Asp Asn 20 25 30

Ala	Ser	Leu 35	Arg	Ala	His	Arg	Leu 40	His	Gln	Leu	Ala	Phe 45	Asp	Thr	Tyr
Gln	Glu 50	Phe	Glu	Glu	Ala	Tyr 55	Ile	Pro	Lys	Glu	Gln 60	Lys	Tyr	Ser	Phe
Leu 65	Gln	Asn	Pro	Gln	Thr 70	Ser	Leu	Суз	Phe	Ser 75	Glu	Ser	Ile	Pro	Thr 80
Pro	Ser	Asn	Arg	Glu 85	Glu	Thr	Gln	Gln	Lys 90	Ser	Asn	Leu	Glu	Leu 95	Leu
Arg	Ile	Ser	Leu 100	Leu	Leu	Ile	Gln	Ser 105	Trp	Leu	Glu	Pro	Val 110	Gln	Phe
Leu	Arg	Ser 115	Val	Phe	Ala	Asn	Ser 120	Leu	Val	Tyr	Gly	Ala 125	Ser	Asp	Ser
Asn	Val 130	Tyr	Asp	Leu	Leu	Lys 135	Asp	Leu	Glu	Glu	Gly 140	Ile	Gln	Thr	Leu
Met 145	Gly	Arg	Leu	Glu	Asp 150	Gly	Ser	Pro	Arg	Thr 155	Gly	Gln	Ile	Phe	Lys 160
Gln	Thr	Tyr	Ser	Lys 165	Phe	Asp	Thr	Asn	Ser 170	His	Asn	Asp	Asp	Ala 175	Leu
			180					185					Met 190		
		195					200					205	Glu		
_	210					215					220		Gly		
225					230					235			Ser		240
Glu	Ala	Thr	Ala	Ala 245	Ile	Leu	Ser	Arg	Ala 250	Pro	Trp	Ser	Leu	Gln 255	Ser

Val Asn Pro Gly Leu Lys Thr Asn Ser Ser Lys Glu Pro Lys Phe Thr

260 265 270

Lys Cys Arg Ser Pro Glu Arg Glu Thr Phe Ser Cys His Trp Thr Asp 275 280 285 Glu Val His His Gly Thr Lys Asn Leu Gly Pro Ile Gln Leu Phe Tyr 295 Thr Arg Arg Asn Thr Gln Glu Trp Thr Gln Glu Trp Lys Glu Cys Pro 305 310 315 320 Asp Tyr Val Ser Ala Gly Glu Asn Ser Cys Tyr Phe Asn Ser Ser Phe 325 330 335 Thr Ser Ile Trp Ile Pro Tyr Cys Ile Lys Leu Thr Ser Asn Gly Gly 340 345 350 Thr Val Asp Glu Lys Cys Phe Ser Val Asp Glu Ile Val Gln Pro Asp 355 360 365 Pro Pro Ile Ala Leu Asn Trp Thr Leu Leu Asn Val Ser Leu Thr Gly 375 380 370 Ile His Ala Asp Ile Gln Val Arg Trp Glu Ala Pro Arg Asn Ala Asp 390 395 385 Ile Gln Lys Gly Trp Met Val Leu Glu Tyr Glu Leu Gln Tyr Lys Glu 405 410 415 Val Asn Glu Thr Lys Trp Lys Met Met Asp Pro Ile Leu Thr Thr Ser 420 425 430 Val Pro Val Tyr Ser Leu Lys Val Asp Lys Glu Tyr Glu Val Arg Val 435 440 Arg Ser Lys Gln Arg Asn Ser Gly Asn Tyr Gly Glu Phe Ser Glu Val 450 455 460 Leu Tyr Val Thr Leu Pro Gln Met Ser Gln Phe Thr Cys Glu Glu Asp 475 480 470 465

Phe Tyr Gly Gly Gly Asp Ile Asp Lys Leu Val Lys Cys Gly Gly

490

485

Ile Ser Leu Leu Val Gln Asn Thr Ser Trp Met Leu Leu Leu Leu Leu 500 505 510

Ser Leu Ser Leu Leu Gln Ala Leu Asp Phe Ile Ser Leu 515 520 525

<210> 5

<211> 1442

<212> DNA

<213> Artificial Sequence

<220>

<223> fusion protein comprising growth hormone fused to growth hormone

<400> 5

<400> 5						
ggatcctcta	gactcgaggt	cctacaggta	tggatctctg	gcagctgctg	ttgaccttgg	60
cactggcagg	atcaagtgat	gctcatatgt	tcccaaccat	tcccttatcc	aggctttttg	120
acaacgctag	tctccgcgcc	catcgtctgc	accagctggc	ctttgacacc	taccaggagt	180
ttgaagaagc	ctatatccca	aaggaacaga	agtattcatt	cctgcagaac	ccccagacct	240
ccctctgttt	ctcagagtct	attccgacac	cctccaacag	ggaggaaaca	caacagaaat	300
ccaacctaga	gctgctccgc	atctccctgc	tgctcatcca	gtcgtggctg	gagcccgtgc	360
agttcctcag	gagtgtcttc	gccaacagcc	tggtgtacgg	cgcctctgac	agcaacgtct	420
atgacctcct	aaaggaccta	gaggaaggca	tccaaacgct	gatggggagg	ctggaagatg	480
gcagcccccg	gactgggcag	atcttcaagc	agacctacag	caagttcgac	acaaactcac	540
acaacgatga	cgcactactc	aagaactacg	ggctgctcta	ctgcttcagg	aaggacatgg	600
acaaggtcga	gacattcctg	cgcatcgtgc	agtgccgctc	tgtggagggc	agctgtggct	660
teggeggeeg	cggtggcgga	ggtagtggtg	gcggaggtag	cggtggcgga	ggttctggtg	720
gcggaggttc	cgaattcttc	ccaaccattc	ccttatccag	gctttttgac	aacgctagtc	780
tccgcgccca	tcgtctgcac	cagctggcct	ttgacaccta	ccaggagttt	gaagaagcct	840
atatcccaaa	ggaacagaag	tattcattcc	tgcagaaccc	ccagacctcc	ctctgtttct	900
cagagtctat	tccgacaccc	tccaacaggg	aggaaacaca	acagaaatcc	aacctagagc	960
tgctccgcat	ctccctgctg	ctcatccagt	cgtggctgga	gcccgtgcag	ttcctcagga	1020
gtgtcttcgc	caacagcctg	gtgtacggcg	cctctgacag	caacgtctat	gacctcctaa	1080
aggacctaga	ggaaggcatc	caaacgctga	tggggaggct	ggaagatggc	agcccccgga	1140

ctgggcagat d	cttcaagcag acct	acagca agttcgaca	nc aaactcacac aacgatga	acg 1200
cactactcaa (gaactacggg ctgc	tctact gcttcagga	aa ggacatggac aaggtcga	aga 1260
cattcctgcg (catcgtgcag tgcc	gctctg tggagggca	ag ctgtggcttc ggcggtg	gag 1320
gggatatcga d	caagctggtc aagt	gtggcg gcataagco	et getggtteag aacacato	cct 1380
ggatgctgct o	getgetgett teec	tctccc tcctccaaç	gc cctagacttc atttctc	igt 1440
ga				1442
<210> 6 <211> 470 <212> PRT <213> Artif	ficial Sequence			
<223> fusio	on protein comp	rising growth ho	ormone fused to growth	n hormone
<400> 6				
Met Asp Leu 1	Trp Gln Leu Le 5	u Leu Thr Leu Al 10	a Leu Ala Gly Ser Se: 15	r
Asp Ala His	Met Phe Pro Th	r Ile Pro Leu Se 25	er Arg Leu Phe Asp Ası 30	า
Ala Ser Leu 35	Arg Ala His Ar	g Leu His Gln Le 40	eu Ala Phe Asp Thr Ty: 45	r
Gln Glu Phe 50	Glu Glu Ala Ty 55	-	u Gln Lys Tyr Ser Pho	€
Leu Gln Asn 65	Pro Gln Thr Se	r Leu Cys Phe Se 75	er Glu Ser Ile Pro Th: 5 80	r
Pro Ser Asn	Arg Glu Glu Th	r Gln Gln Lys Se 90	er Asn Leu Glu Leu Leu 95	1
Arg Ile Ser	Leu Leu Leu Il 100	e Gln Ser Trp Le 105	eu Glu Pro Val Gln Phe 110	<u> </u>
Leu Arg Ser 115	Val Phe Ala As	n Ser Leu Val T <u>y</u> 120	r Gly Ala Ser Asp Se: 125	r

Asn Val Tyr Asp Leu Leu Lys Asp Leu Glu Glu Gly Ile Gln Thr Leu

Met 145	Gly	Arg	Leu	Glu	Asp 150	Gly	Ser	Pro	Arg	Thr 155	Gly	Gln	Ile	Phe	Lys 160
Gln	Thr	Tyr	Ser	Lys 165	Phe	Asp	Thr	Asn	Ser 170	His	Asn	Asp	Asp	Ala 175	Leu
Leu	Lys	Asn	Tyr 180	Gly	Leu	Leu	Tyr	Суз 185	Phe	Arg	Lys	Asp	Met 190	Asp	Lys
Val	Glu	Thr 195	Phe	Leu	Arg	Ile	Val 200	Gln	Суз	Arg	Ser	Val 205	Glu	Gly	Ser
Cys	Gly 210	Phe	Gly	Gly	Arg	Gly 215	Gly	Gly	Gly	Ser	Gly 220	Gly	Gly	Gly	Ser
Gly 225	Gly	Gly	Gly	Ser	Gly 230	Gly	Gly	Gly	Ser	Glu 235	Phe	Phe	Pro	Thr	Ile 240
Pro	Leu	Ser	Arg	Leu 245	Phe	Asp	Asn	Ala	Ser 250	Leu	Arg	Ala	His	Arg 255	Leu
His	Gln	Leu	Ala 260	Phe	Asp	Thr	Tyr	Gln 265	Glu	Phe	Glu	Glu	Ala 270	Tyr	Ile
Pro	Lys	Glu 275	Gln	Lys	Tyr	Ser	Phe 280	Leu	Gln	Asn	Pro	Gln 285	Thr	Ser	Leu
Суз	Phe 290	Ser	Glu	Ser	Ile	Pro 295	Thr	Pro	Ser	Asn	Arg 300	Glu	Glu	Thr	Gln
Gln 305	Lys	Ser	Asn	Leu	Glu 310	Leu	Leu	Arg	Ile	Ser 315	Leu	Leu	Leu	Ile	Gln 320
Ser	Trp	Leu	Glu	Pro 325	Val	Gln	Phe	Leu	Arg 330	Ser	Val	Phe	Ala	Asn 335	Ser
Leu	Val	Tyr	Gly 340	Ala	Ser	Asp	Ser	Asn 345	Val	Tyr	Asp	Leu	Leu 350	Lys	Asp
Leu	Glu	Glu	Gly	Ile	Gln	Thr	Leu	Met	Gly	Arg	Leu	Glu	Asp	Gly	Ser

```
Pro Arg Thr Gly Gln Ile Phe Lys Gln Thr Tyr Ser Lys Phe Asp Thr
   370
Asn Ser His Asn Asp Asp Ala Leu Leu Lys Asn Tyr Gly Leu Leu Tyr
                     395
385
               390
Cys Phe Arg Lys Asp Met Asp Lys Val Glu Thr Phe Leu Arg Ile Val
            405
                   410 415
Gln Cys Arg Ser Val Glu Gly Ser Cys Gly Phe Gly Gly Gly Asp
              425
        420
Ile Asp Lys Leu Val Lys Cys Gly Gly Ile Ser Leu Leu Val Gln Asn
     435
                      440
Thr Ser Trp Met Leu Leu Leu Leu Ser Leu Ser Leu Leu Gln Ala
   450
           455
                                   460
Leu Asp Phe Ile Ser Leu
465
              470
<210> 7
<211> 29
<212> DNA
<213> Artificial Sequence
<220>
<223> growth hormone receptor primer
<400> 7
gcgcggatcc tctagactcg aggtcctac
                                                              29
<210> 8
<211> 29
<212> DNA
<213> Artificial Sequence
<220>
<223> growth hormone receptor primer
<400> 8
                                                              29
gcgccatatg agcatcactt gatcctgcg
<210> 9
<211> 30
<212> DNA
```

<213> Artificial Sequence

<220>
<223> primer amplification of human growth hormone
<400> 9
gegecatatg tteccaacca tteeettate

SEQUENCE LISTING

<110>	Ross, Richard	
	Sayers, Jon	
	Artymiuk, Peter	
<120>	Cytokine Polypeptides and Antiboidies Containing A Signal	
	Sequence for the Attachment of Glycosylphosphatidyinositol	
<130>	100042.59316US	
<140>	10522388	
<141>	2009-04-14	
<150>	10/552,388	
<151>	2005-10-07	
<150>	PCT/GB04/001572	
<151>	2004-04-07	
<150>	GB 0324235.1	
<151>	2003-10-16	
<150>		
<151>	2003-04-09	
<160>	29	
-170-		
<170>	PatentIn version 3.5	
<210>	1	
<211>	794	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	fusion protein comprising growth hormone fused to domain	
	comprising glycosylphosphatidyinositol	
<400>	1	
ggatcc	tcta gactcgaggt cctacaggta tggatctctg gcagctgctg ttgaccttgg	60
cactgg	cagg atcaagtgat geteatatgt teecaaceat teeettatee aggetttttg	120
		7.00
acaacg	ctag teteegegee categtetge accagetgge etttgacace taccaggagt	180
++α>>α	aagc ctatatccca aaggaacaga agtattcatt cctgcagaac ccccagacct	240
ttgaag	aage craraceeda aaggaacaga agraricari eergeagaac eeeeagaeer .	240
ccctctc	gttt ctcagagtct attccgacac cctccaacag ggaggaaaca caacagaaat	300
000000	geee dedagageee accordance decodadag ggaggaaada daadagaaac	300
ccaacc	taga getgeteege ateteeetge tgeteateea gtegtggetg gageeegtge	360
agttcc	tcag gagtgtcttc gccaacagcc tggtgtacgg cgcctctgac agcaacgtct	420
atgacc	tcct aaaggaccta gaggaaggca tccaaacgct gatggggagg ctggaagatg	480

gcagcccccg gactgggcag atcttcaagc agacctacag caagttcgac acaaactcac 540

acaacgatga cgcactactc aagaactacg ggctgctcta ctgcttcagg aaggacatgg	600
acaaggtcga gacattcctg cgcatcgtgc agtgccgctc tgtggagggc agctgtggct	660
tcggcggtgg aggggatatc gacaagctgg tcaagtgtgg cggcataagc ctgctggttc	720
agaacacatc ctggatgctg ctgctgctgc tttccctctc cctcctcaa gccctagact	780
tcatttctct gtga	794
<210> 2 <211> 254	
<211> 234 <212> PRT	
<213> Artificial Sequence	
<220>	
<223> fusion protein comprising growth hormone fused to a	
glycosylphosphatidyinositol domain	
<400> 2	
Met Asp Leu Trp Gln Leu Leu Thr Leu Ala Leu Ala Gly Ser Ser	
1 5 10 15	
Asp Ala His Met Phe Pro Thr Ile Pro Leu Ser Arg Leu Phe Asp Asn	
20 25 30	
Ala Ser Leu Arg Ala His Arg Leu His Gln Leu Ala Phe Asp Thr Tyr	
35 40 45	
Gln Glu Phe Glu Glu Ala Tyr Ile Pro Lys Glu Gln Lys Tyr Ser Phe	
50 55 60	
Leu Gln Asn Pro Gln Thr Ser Leu Cys Phe Ser Glu Ser Ile Pro Thr	
65 70 75 80	
Pro Ser Asn Arg Glu Glu Thr Gln Gln Lys Ser Asn Leu Glu Leu	
85 90 95 	
Arg Ile Ser Leu Leu Ile Gln Ser Trp Leu Glu Pro Val Gln Phe 100 105 110	
Lou Arg Cor Wal Dho Ala Aga Cor Lou Wal Two Clar Ala Car Aga Car	
Leu Arg Ser Val Phe Ala Asn Ser Leu Val Tyr Gly Ala Ser Asp Ser 115 120 125	

Asn Val Tyr Asp Leu Leu Lys Asp Leu Glu Glu Gly Ile Gln Thr Leu

Met Gly Arg Leu Glu Asp Gly Ser Pro Arg Thr Gly Gln Ile Phe Lys 145 150 155 160
Gln Thr Tyr Ser Lys Phe Asp Thr Asn Ser His Asn Asp Asp Ala Leu 165 170 175
Leu Lys Asn Tyr Gly Leu Leu Tyr Cys Phe Arg Lys Asp Met Asp Lys 180 185 190
Val Glu Thr Phe Leu Arg Ile Val Gln Cys Arg Ser Val Glu Gly Ser 195 200 205
Cys Gly Phe Gly Gly Gly Asp Ile Asp Lys Leu Val Lys Cys Gly 210 215 220
Gly Ile Ser Leu Leu Val Gln Asn Thr Ser Trp Met Leu Leu Leu Leu 225 230 235 240
Leu Ser Leu Ser Leu Leu Gln Ala Leu Asp Phe Ile Ser Leu 245 250
<210> 3 <211> 1607 <212> DNA <213> Artificial Sequence
<220> <223> fusion protein comprising growth hormone fused to growth hormone receptor
<400> 3 ggatcctcta gactcgaggt cctacaggta tggatctctg gcagctgctg ttgaccttgg 60
cactggcagg atcaagtgat gctcatatgt tcccaaccat tcccttatcc aggctttttg 120
acaacgctag tctccgcgcc catcgtctgc accagctggc ctttgacacc taccaggagt 180
ttgaagaagc ctatatccca aaggaacaga agtattcatt cctgcagaac ccccagacct 240
ccctctgttt ctcagagtct attccgacac cctccaacag ggaggaaaca caacagaaat 300
ccaacctaga getgeteege ateteeetge tgeteateea gtegtggetg gageeegtge 360
agttcctcag gagtgtcttc gccaacagcc tggtgtacgg cgcctctgac agcaacgtct 420
atgaceteet aaaggaceta gaggaaggea tecaaaeget gatggggagg etggaagatg 480

gcagcccccg gactgggcag atcttcaagc agacctacag caagttcgac acaaactcac 540

acaacgatga	cgcactactc	aagaactacg	ggctgctcta	ctgcttcagg	aaggacatgg	600
acaaggtcga	gacattcctg	cgcatcgtgc	agtgccgctc	tgtggagggc	agctgtggct	660
teggeggeeg	cggtggcgga	ggtagtggtg	gcggaggtag	cggtggcgga	ggttctggtg	720
gcggaggttc	cgaattcttt	tctggaagtg	aggccacagc	agctatcctt	agcagagcac	780
cctggagtct	gcaaagtgtt	aatccaggcc	taaagacaaa	ttcttctaag	gagcctaaat	840
tcaccaagtg	ccgttcacct	gagcgagaga	ctttttcatg	ccactggaca	gatgaggttc	900
atcatggtac	aaagaaccta	ggacccatac	agctgttcta	taccagaagg	aacactcaag	960
aatggactca	agaatggaaa	gaatgccctg	attatgtttc	tgctggggaa	aacagctgtt	1020
actttaattc	atcgtttacc	tccatctgga	taccttattg	tatcaagcta	actagcaatg	1080
gtggtacagt	ggatgaaaag	tgtttctctg	ttgatgaaat	agtgcaacca	gatccaccca	1140
ttgccctcaa	ctggacttta	ctgaacgtca	gtttaactgg	gattcatgca	gatatccaag	1200
tgagatggga	agcaccacgc	aatgcagata	ttcagaaagg	atggatggtt	ctggagtatg	1260
aacttcaata	caaagaagta	aatgaaacta	aatggaaaat	gatggaccct	atattgacaa	1320
catcagttcc	agtgtactca	ttgaaagtgg	ataaggaata	tgaagtgcgt	gtgagatcca	1380
aacaacgaaa	ctctggaaat	tatggcgagt	tcagtgaggt	gctctatgta	acacttcctc	1440
agatgagcca	atttacatgt	gaagaagatt	tctacggcgg	tggaggggat	atcgacaagc	1500
tggtcaagtg	tggcggcata	agectgctgg	ttcagaacac	atcctggatg	ctgctgctgc	1560
tgctttccct	ctccctcctc	caagccctag	acttcatttc	tctgtga		1607

<210> 4

<211> 525

<212> PRT

<213> Artificial Sequence

<220>

 $<\!\!223\!\!>$ fusion protein comprising growth hormone fused to growth hormone receptor

<400> 4

Met Asp Leu Trp Gln Leu Leu Leu Thr Leu Ala Leu Ala Gly Ser Ser $1 \hspace{1.5cm} 5 \hspace{1.5cm} 10 \hspace{1.5cm} 15$

Asp Ala His Met Phe Pro Thr Ile Pro Leu Ser Arg Leu Phe Asp Asn 20 25 30

Ala	Ser	Leu 35	Arg	Ala	His	Arg	Leu 40	His	Gln	Leu	Ala	Phe 45	Asp	Thr	Tyr
Gln	Glu 50	Phe	Glu	Glu	Ala	Tyr 55	Ile	Pro	Lys	Glu	Gln 60	Lys	Tyr	Ser	Phe
Leu 65	Gln	Asn	Pro	Gln	Thr 70	Ser	Leu	Суз	Phe	Ser 75	Glu	Ser	Ile	Pro	Thr 80
Pro	Ser	Asn	Arg	Glu 85	Glu	Thr	Gln	Gln	Lys 90	Ser	Asn	Leu	Glu	Leu 95	Leu
Arg	Ile	Ser	Leu 100	Leu	Leu	Ile	Gln	Ser 105	Trp	Leu	Glu	Pro	Val 110	Gln	Phe
Leu	Arg	Ser 115	Val	Phe	Ala	Asn	Ser 120	Leu	Val	Tyr	Gly	Ala 125	Ser	Asp	Ser
Asn	Val 130	Tyr	Asp	Leu	Leu	Lys 135	Asp	Leu	Glu	Glu	Gly 140	Ile	Gln	Thr	Leu
Met 145	Gly	Arg	Leu	Glu	Asp 150	Gly	Ser	Pro	Arg	Thr 155	Gly	Gln	Ile	Phe	Lys 160
Gln	Thr	Tyr	Ser	Lys 165	Phe	Asp	Thr	Asn	Ser 170	His	Asn	Asp	Asp	Ala 175	Leu
			180					185					Met 190		
		195					200					205	Glu		
_	210					215					220		Gly		
225					230					235			Ser		240
Glu	Ala	Thr	Ala	Ala 245	Ile	Leu	Ser	Arg	Ala 250	Pro	Trp	Ser	Leu	Gln 255	Ser

Val Asn Pro Gly Leu Lys Thr Asn Ser Ser Lys Glu Pro Lys Phe Thr

260 265 270

Lys Cys Arg Ser Pro Glu Arg Glu Thr Phe Ser Cys His Trp Thr Asp 275 280 285 Glu Val His His Gly Thr Lys Asn Leu Gly Pro Ile Gln Leu Phe Tyr 295 Thr Arg Arg Asn Thr Gln Glu Trp Thr Gln Glu Trp Lys Glu Cys Pro 305 310 315 320 Asp Tyr Val Ser Ala Gly Glu Asn Ser Cys Tyr Phe Asn Ser Ser Phe 325 330 335 Thr Ser Ile Trp Ile Pro Tyr Cys Ile Lys Leu Thr Ser Asn Gly Gly 340 345 350 Thr Val Asp Glu Lys Cys Phe Ser Val Asp Glu Ile Val Gln Pro Asp 355 360 365 Pro Pro Ile Ala Leu Asn Trp Thr Leu Leu Asn Val Ser Leu Thr Gly 375 380 370 Ile His Ala Asp Ile Gln Val Arg Trp Glu Ala Pro Arg Asn Ala Asp 390 395 385 Ile Gln Lys Gly Trp Met Val Leu Glu Tyr Glu Leu Gln Tyr Lys Glu 405 410 415 Val Asn Glu Thr Lys Trp Lys Met Met Asp Pro Ile Leu Thr Thr Ser 420 425 430 Val Pro Val Tyr Ser Leu Lys Val Asp Lys Glu Tyr Glu Val Arg Val 435 440 Arg Ser Lys Gln Arg Asn Ser Gly Asn Tyr Gly Glu Phe Ser Glu Val 450 455 460 Leu Tyr Val Thr Leu Pro Gln Met Ser Gln Phe Thr Cys Glu Glu Asp 475 480 470 465

Phe Tyr Gly Gly Gly Asp Ile Asp Lys Leu Val Lys Cys Gly Gly

490

485

Ile Ser Leu Leu Val Gln Asn Thr Ser Trp Met Leu Leu Leu Leu Leu 500 505 510

Ser Leu Ser Leu Leu Gln Ala Leu Asp Phe Ile Ser Leu 515 520 525

<210> 5

<211> 1442

<212> DNA

<213> Artificial Sequence

<220>

<223> fusion protein comprising growth hormone fused to growth hormone

<400> 5

<400> 5						
ggatcctcta	gactcgaggt	cctacaggta	tggatctctg	gcagctgctg	ttgaccttgg	60
cactggcagg	atcaagtgat	gctcatatgt	tcccaaccat	tcccttatcc	aggctttttg	120
acaacgctag	tctccgcgcc	catcgtctgc	accagctggc	ctttgacacc	taccaggagt	180
ttgaagaagc	ctatatccca	aaggaacaga	agtattcatt	cctgcagaac	ccccagacct	240
ccctctgttt	ctcagagtct	attccgacac	cctccaacag	ggaggaaaca	caacagaaat	300
ccaacctaga	gctgctccgc	atctccctgc	tgctcatcca	gtcgtggctg	gagcccgtgc	360
agttcctcag	gagtgtcttc	gccaacagcc	tggtgtacgg	cgcctctgac	agcaacgtct	420
atgacctcct	aaaggaccta	gaggaaggca	tccaaacgct	gatggggagg	ctggaagatg	480
gcagcccccg	gactgggcag	atcttcaagc	agacctacag	caagttcgac	acaaactcac	540
acaacgatga	cgcactactc	aagaactacg	ggctgctcta	ctgcttcagg	aaggacatgg	600
acaaggtcga	gacattcctg	cgcatcgtgc	agtgccgctc	tgtggagggc	agctgtggct	660
teggeggeeg	cggtggcgga	ggtagtggtg	gcggaggtag	cggtggcgga	ggttctggtg	720
gcggaggttc	cgaattcttc	ccaaccattc	ccttatccag	gctttttgac	aacgctagtc	780
tccgcgccca	tcgtctgcac	cagctggcct	ttgacaccta	ccaggagttt	gaagaagcct	840
atatcccaaa	ggaacagaag	tattcattcc	tgcagaaccc	ccagacctcc	ctctgtttct	900
cagagtctat	tccgacaccc	tccaacaggg	aggaaacaca	acagaaatcc	aacctagagc	960
tgctccgcat	ctccctgctg	ctcatccagt	cgtggctgga	gcccgtgcag	ttcctcagga	1020
gtgtcttcgc	caacagcctg	gtgtacggcg	cctctgacag	caacgtctat	gacctcctaa	1080
aggacctaga	ggaaggcatc	caaacgctga	tggggaggct	ggaagatggc	agcccccgga	1140

ctgggcagat d	cttcaagcag acct	acagca agttcgaca	nc aaactcacac aacgatga	acg 1200
cactactcaa (gaactacggg ctgc	tctact gcttcagga	aa ggacatggac aaggtcga	aga 1260
cattcctgcg (catcgtgcag tgcc	gctctg tggagggca	ag ctgtggcttc ggcggtg	gag 1320
gggatatcga d	caagctggtc aagt	gtggcg gcataagco	et getggtteag aacacato	cct 1380
ggatgctgct o	getgetgett teec	tctccc tcctccaaç	gc cctagacttc atttctc	igt 1440
ga				1442
<210> 6 <211> 470 <212> PRT <213> Artif	ficial Sequence			
<223> fusio	on protein comp	rising growth ho	ormone fused to growth	n hormone
<400> 6				
Met Asp Leu 1	Trp Gln Leu Le 5	u Leu Thr Leu Al 10	a Leu Ala Gly Ser Se: 15	r
Asp Ala His	Met Phe Pro Th	r Ile Pro Leu Se 25	er Arg Leu Phe Asp Ası 30	า
Ala Ser Leu 35	Arg Ala His Ar	g Leu His Gln Le 40	eu Ala Phe Asp Thr Ty: 45	r
Gln Glu Phe 50	Glu Glu Ala Ty 55	-	u Gln Lys Tyr Ser Pho	€
Leu Gln Asn 65	Pro Gln Thr Se	r Leu Cys Phe Se 75	er Glu Ser Ile Pro Th: 5 80	r
Pro Ser Asn	Arg Glu Glu Th	r Gln Gln Lys Se 90	er Asn Leu Glu Leu Leu 95	1
Arg Ile Ser	Leu Leu Leu Il 100	e Gln Ser Trp Le 105	eu Glu Pro Val Gln Phe 110	<u> </u>
Leu Arg Ser 115	Val Phe Ala As	n Ser Leu Val T <u>y</u> 120	r Gly Ala Ser Asp Se: 125	r

Asn Val Tyr Asp Leu Leu Lys Asp Leu Glu Glu Gly Ile Gln Thr Leu

Met 145	Gly	Arg	Leu	Glu	Asp 150	Gly	Ser	Pro	Arg	Thr 155	Gly	Gln	Ile	Phe	Lys 160
Gln	Thr	Tyr	Ser	Lys 165	Phe	Asp	Thr	Asn	Ser 170	His	Asn	Asp	Asp	Ala 175	Leu
Leu	Lys	Asn	Tyr 180	Gly	Leu	Leu	Tyr	Суз 185	Phe	Arg	Lys	Asp	Met 190	Asp	Lys
Val	Glu	Thr 195	Phe	Leu	Arg	Ile	Val 200	Gln	Суз	Arg	Ser	Val 205	Glu	Gly	Ser
Cys	Gly 210	Phe	Gly	Gly	Arg	Gly 215	Gly	Gly	Gly	Ser	Gly 220	Gly	Gly	Gly	Ser
Gly 225	Gly	Gly	Gly	Ser	Gly 230	Gly	Gly	Gly	Ser	Glu 235	Phe	Phe	Pro	Thr	Ile 240
Pro	Leu	Ser	Arg	Leu 245	Phe	Asp	Asn	Ala	Ser 250	Leu	Arg	Ala	His	Arg 255	Leu
His	Gln	Leu	Ala 260	Phe	Asp	Thr	Tyr	Gln 265	Glu	Phe	Glu	Glu	Ala 270	Tyr	Ile
Pro	Lys	Glu 275	Gln	Lys	Tyr	Ser	Phe 280	Leu	Gln	Asn	Pro	Gln 285	Thr	Ser	Leu
Суз	Phe 290	Ser	Glu	Ser	Ile	Pro 295	Thr	Pro	Ser	Asn	Arg 300	Glu	Glu	Thr	Gln
Gln 305	Lys	Ser	Asn	Leu	Glu 310	Leu	Leu	Arg	Ile	Ser 315	Leu	Leu	Leu	Ile	Gln 320
Ser	Trp	Leu	Glu	Pro 325	Val	Gln	Phe	Leu	Arg 330	Ser	Val	Phe	Ala	Asn 335	Ser
Leu	Val	Tyr	Gly 340	Ala	Ser	Asp	Ser	Asn 345	Val	Tyr	Asp	Leu	Leu 350	Lys	Asp
Leu	Glu	Glu	Gly	Ile	Gln	Thr	Leu	Met	Gly	Arg	Leu	Glu	Asp	Gly	Ser

```
Pro Arg Thr Gly Gln Ile Phe Lys Gln Thr Tyr Ser Lys Phe Asp Thr
   370
Asn Ser His Asn Asp Asp Ala Leu Leu Lys Asn Tyr Gly Leu Leu Tyr
                     395
385
               390
Cys Phe Arg Lys Asp Met Asp Lys Val Glu Thr Phe Leu Arg Ile Val
            405
                   410 415
Gln Cys Arg Ser Val Glu Gly Ser Cys Gly Phe Gly Gly Gly Asp
              425
        420
Ile Asp Lys Leu Val Lys Cys Gly Gly Ile Ser Leu Leu Val Gln Asn
     435
                      440
Thr Ser Trp Met Leu Leu Leu Leu Ser Leu Ser Leu Leu Gln Ala
   450
           455
                                   460
Leu Asp Phe Ile Ser Leu
465
              470
<210> 7
<211> 29
<212> DNA
<213> Artificial Sequence
<220>
<223> growth hormone receptor primer
<400> 7
gcgcggatcc tctagactcg aggtcctac
                                                              29
<210> 8
<211> 29
<212> DNA
<213> Artificial Sequence
<220>
<223> growth hormone receptor primer
<400> 8
                                                              29
gcgccatatg agcatcactt gatcctgcg
<210> 9
<211> 30
<212> DNA
```

<213> Artificial Sequence

<220>
<223> primer amplification of human growth hormone
<400> 9
gegecatatg tteccaacca tteeettate

SEQUENCE LISTING

<110>	Ross, Richard	
	Sayers, Jon	
	Artymiuk, Peter	
<120>	Cytokine Polypeptides and Antiboidies Containing A Signal	
	Sequence for the Attachment of Glycosylphosphatidyinositol	
<130>	100042.59316US	
<140>	10522388	
<141>	2009-04-14	
<150>	10/552,388	
<151>	2005-10-07	
<150>	PCT/GB04/001572	
<151>	2004-04-07	
<150>	GB 0324235.1	
<151>	2003-10-16	
<150>		
<151>	2003-04-09	
<160>	29	
-170-		
<170>	PatentIn version 3.5	
<210>	1	
<211>	794	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	fusion protein comprising growth hormone fused to domain	
	comprising glycosylphosphatidyinositol	
<400>	1	
ggatcc	tcta gactcgaggt cctacaggta tggatctctg gcagctgctg ttgaccttgg	60
cactgg	cagg atcaagtgat geteatatgt teecaaceat teeettatee aggetttttg	120
		7.00
acaacg	ctag teteegegee categtetge accagetgge etttgacace taccaggagt	180
++α>>α	aagc ctatatccca aaggaacaga agtattcatt cctgcagaac ccccagacct	240
ttgaag	aage craraceeda aaggaacaga agraricari eergeagaac eeeeagaeer .	240
ccctctc	gttt ctcagagtct attccgacac cctccaacag ggaggaaaca caacagaaat	300
000000	geee dedagageee accordance decodadag ggaggaaada daadagaaac	300
ccaacc	taga getgeteege ateteeetge tgeteateea gtegtggetg gageeegtge	360
agttcc	tcag gagtgtcttc gccaacagcc tggtgtacgg cgcctctgac agcaacgtct	420
atgacc	tcct aaaggaccta gaggaaggca tccaaacgct gatggggagg ctggaagatg	480

gcagcccccg gactgggcag atcttcaagc agacctacag caagttcgac acaaactcac 540

acaacgatga cgcactactc aagaactacg ggctgctcta ctgcttcagg aaggacatgg	600
acaaggtcga gacattcctg cgcatcgtgc agtgccgctc tgtggagggc agctgtggct	660
tcggcggtgg aggggatatc gacaagctgg tcaagtgtgg cggcataagc ctgctggttc	720
agaacacatc ctggatgctg ctgctgctgc tttccctctc cctcctcaa gccctagact	780
tcatttctct gtga	794
<210> 2 <211> 254	
<211> 234 <212> PRT	
<213> Artificial Sequence	
<220>	
<223> fusion protein comprising growth hormone fused to a	
glycosylphosphatidyinositol domain	
<400> 2	
Met Asp Leu Trp Gln Leu Leu Thr Leu Ala Leu Ala Gly Ser Ser	
1 5 10 15	
Asp Ala His Met Phe Pro Thr Ile Pro Leu Ser Arg Leu Phe Asp Asn	
20 25 30	
Ala Ser Leu Arg Ala His Arg Leu His Gln Leu Ala Phe Asp Thr Tyr	
35 40 45	
Gln Glu Phe Glu Glu Ala Tyr Ile Pro Lys Glu Gln Lys Tyr Ser Phe	
50 55 60	
Leu Gln Asn Pro Gln Thr Ser Leu Cys Phe Ser Glu Ser Ile Pro Thr	
65 70 75 80	
Pro Ser Asn Arg Glu Glu Thr Gln Gln Lys Ser Asn Leu Glu Leu	
85 90 95 	
Arg Ile Ser Leu Leu Ile Gln Ser Trp Leu Glu Pro Val Gln Phe 100 105 110	
Lou Arg Cor Wal Dho Ala Aga Cor Lou Wal Two Clar Ala Car Aga Car	
Leu Arg Ser Val Phe Ala Asn Ser Leu Val Tyr Gly Ala Ser Asp Ser 115 120 125	

Asn Val Tyr Asp Leu Leu Lys Asp Leu Glu Glu Gly Ile Gln Thr Leu

Met Gly Arg Leu Glu Asp Gly Ser Pro Arg Thr Gly Gln Ile Phe Lys 145 150 155 160
Gln Thr Tyr Ser Lys Phe Asp Thr Asn Ser His Asn Asp Asp Ala Leu 165 170 175
Leu Lys Asn Tyr Gly Leu Leu Tyr Cys Phe Arg Lys Asp Met Asp Lys 180 185 190
Val Glu Thr Phe Leu Arg Ile Val Gln Cys Arg Ser Val Glu Gly Ser 195 200 205
Cys Gly Phe Gly Gly Gly Asp Ile Asp Lys Leu Val Lys Cys Gly 210 215 220
Gly Ile Ser Leu Leu Val Gln Asn Thr Ser Trp Met Leu Leu Leu Leu 225 230 235 240
Leu Ser Leu Ser Leu Leu Gln Ala Leu Asp Phe Ile Ser Leu 245 250
<210> 3 <211> 1607 <212> DNA <213> Artificial Sequence
<220> <223> fusion protein comprising growth hormone fused to growth hormone receptor
<400> 3 ggatcctcta gactcgaggt cctacaggta tggatctctg gcagctgctg ttgaccttgg 60
cactggcagg atcaagtgat gctcatatgt tcccaaccat tcccttatcc aggctttttg 120
acaacgctag tctccgcgcc catcgtctgc accagctggc ctttgacacc taccaggagt 180
ttgaagaagc ctatatccca aaggaacaga agtattcatt cctgcagaac ccccagacct 240
ccctctgttt ctcagagtct attccgacac cctccaacag ggaggaaaca caacagaaat 300
ccaacctaga getgeteege ateteeetge tgeteateea gtegtggetg gageeegtge 360
agttcctcag gagtgtcttc gccaacagcc tggtgtacgg cgcctctgac agcaacgtct 420
atgaceteet aaaggaceta gaggaaggea tecaaaeget gatggggagg etggaagatg 480

gcagcccccg gactgggcag atcttcaagc agacctacag caagttcgac acaaactcac 540

acaacgatga	cgcactactc	aagaactacg	ggctgctcta	ctgcttcagg	aaggacatgg	600
acaaggtcga	gacattcctg	cgcatcgtgc	agtgccgctc	tgtggagggc	agctgtggct	660
teggeggeeg	cggtggcgga	ggtagtggtg	gcggaggtag	cggtggcgga	ggttctggtg	720
gcggaggttc	cgaattcttt	tctggaagtg	aggccacagc	agctatcctt	agcagagcac	780
cctggagtct	gcaaagtgtt	aatccaggcc	taaagacaaa	ttcttctaag	gagcctaaat	840
tcaccaagtg	ccgttcacct	gagcgagaga	ctttttcatg	ccactggaca	gatgaggttc	900
atcatggtac	aaagaaccta	ggacccatac	agctgttcta	taccagaagg	aacactcaag	960
aatggactca	agaatggaaa	gaatgccctg	attatgtttc	tgctggggaa	aacagctgtt	1020
actttaattc	atcgtttacc	tccatctgga	taccttattg	tatcaagcta	actagcaatg	1080
gtggtacagt	ggatgaaaag	tgtttctctg	ttgatgaaat	agtgcaacca	gatccaccca	1140
ttgccctcaa	ctggacttta	ctgaacgtca	gtttaactgg	gattcatgca	gatatccaag	1200
tgagatggga	agcaccacgc	aatgcagata	ttcagaaagg	atggatggtt	ctggagtatg	1260
aacttcaata	caaagaagta	aatgaaacta	aatggaaaat	gatggaccct	atattgacaa	1320
catcagttcc	agtgtactca	ttgaaagtgg	ataaggaata	tgaagtgcgt	gtgagatcca	1380
aacaacgaaa	ctctggaaat	tatggcgagt	tcagtgaggt	gctctatgta	acacttcctc	1440
agatgagcca	atttacatgt	gaagaagatt	tctacggcgg	tggaggggat	atcgacaagc	1500
tggtcaagtg	tggcggcata	agectgctgg	ttcagaacac	atcctggatg	ctgctgctgc	1560
tgctttccct	ctccctcctc	caagccctag	acttcatttc	tctgtga		1607

<210> 4

<211> 525

<212> PRT

<213> Artificial Sequence

<220>

 $<\!\!223\!\!>$ fusion protein comprising growth hormone fused to growth hormone receptor

<400> 4

Met Asp Leu Trp Gln Leu Leu Leu Thr Leu Ala Leu Ala Gly Ser Ser $1 \hspace{1.5cm} 5 \hspace{1.5cm} 10 \hspace{1.5cm} 15$

Asp Ala His Met Phe Pro Thr Ile Pro Leu Ser Arg Leu Phe Asp Asn 20 25 30

Ala	Ser	Leu 35	Arg	Ala	His	Arg	Leu 40	His	Gln	Leu	Ala	Phe 45	Asp	Thr	Tyr
Gln	Glu 50	Phe	Glu	Glu	Ala	Tyr 55	Ile	Pro	Lys	Glu	Gln 60	Lys	Tyr	Ser	Phe
Leu 65	Gln	Asn	Pro	Gln	Thr 70	Ser	Leu	Суз	Phe	Ser 75	Glu	Ser	Ile	Pro	Thr 80
Pro	Ser	Asn	Arg	Glu 85	Glu	Thr	Gln	Gln	Lys 90	Ser	Asn	Leu	Glu	Leu 95	Leu
Arg	Ile	Ser	Leu 100	Leu	Leu	Ile	Gln	Ser 105	Trp	Leu	Glu	Pro	Val 110	Gln	Phe
Leu	Arg	Ser 115	Val	Phe	Ala	Asn	Ser 120	Leu	Val	Tyr	Gly	Ala 125	Ser	Asp	Ser
Asn	Val 130	Tyr	Asp	Leu	Leu	Lys 135	Asp	Leu	Glu	Glu	Gly 140	Ile	Gln	Thr	Leu
Met 145	Gly	Arg	Leu	Glu	Asp 150	Gly	Ser	Pro	Arg	Thr 155	Gly	Gln	Ile	Phe	Lys 160
Gln	Thr	Tyr	Ser	Lys 165	Phe	Asp	Thr	Asn	Ser 170	His	Asn	Asp	Asp	Ala 175	Leu
			180					185					Met 190		
		195					200					205	Glu		
_	210					215					220		Gly		
225					230					235			Ser		240
Glu	Ala	Thr	Ala	Ala 245	Ile	Leu	Ser	Arg	Ala 250	Pro	Trp	Ser	Leu	Gln 255	Ser

Val Asn Pro Gly Leu Lys Thr Asn Ser Ser Lys Glu Pro Lys Phe Thr

260 265 270

Lys Cys Arg Ser Pro Glu Arg Glu Thr Phe Ser Cys His Trp Thr Asp 275 280 285 Glu Val His His Gly Thr Lys Asn Leu Gly Pro Ile Gln Leu Phe Tyr 295 Thr Arg Arg Asn Thr Gln Glu Trp Thr Gln Glu Trp Lys Glu Cys Pro 305 310 315 320 Asp Tyr Val Ser Ala Gly Glu Asn Ser Cys Tyr Phe Asn Ser Ser Phe 325 330 335 Thr Ser Ile Trp Ile Pro Tyr Cys Ile Lys Leu Thr Ser Asn Gly Gly 340 345 350 Thr Val Asp Glu Lys Cys Phe Ser Val Asp Glu Ile Val Gln Pro Asp 355 360 365 Pro Pro Ile Ala Leu Asn Trp Thr Leu Leu Asn Val Ser Leu Thr Gly 375 380 370 Ile His Ala Asp Ile Gln Val Arg Trp Glu Ala Pro Arg Asn Ala Asp 390 395 385 Ile Gln Lys Gly Trp Met Val Leu Glu Tyr Glu Leu Gln Tyr Lys Glu 405 410 415 Val Asn Glu Thr Lys Trp Lys Met Met Asp Pro Ile Leu Thr Thr Ser 420 425 430 Val Pro Val Tyr Ser Leu Lys Val Asp Lys Glu Tyr Glu Val Arg Val 435 440 Arg Ser Lys Gln Arg Asn Ser Gly Asn Tyr Gly Glu Phe Ser Glu Val 450 455 460 Leu Tyr Val Thr Leu Pro Gln Met Ser Gln Phe Thr Cys Glu Glu Asp 475 480 470 465

Phe Tyr Gly Gly Gly Asp Ile Asp Lys Leu Val Lys Cys Gly Gly

490

485

Ile Ser Leu Leu Val Gln Asn Thr Ser Trp Met Leu Leu Leu Leu Leu 500 505 510

Ser Leu Ser Leu Leu Gln Ala Leu Asp Phe Ile Ser Leu 515 520 525

<210> 5

<211> 1442

<212> DNA

<213> Artificial Sequence

<220>

<223> fusion protein comprising growth hormone fused to growth hormone

<400> 5

<400> 5						
ggatcctcta	gactcgaggt	cctacaggta	tggatctctg	gcagctgctg	ttgaccttgg	60
cactggcagg	atcaagtgat	gctcatatgt	tcccaaccat	tcccttatcc	aggctttttg	120
acaacgctag	tctccgcgcc	catcgtctgc	accagctggc	ctttgacacc	taccaggagt	180
ttgaagaagc	ctatatccca	aaggaacaga	agtattcatt	cctgcagaac	ccccagacct	240
ccctctgttt	ctcagagtct	attccgacac	cctccaacag	ggaggaaaca	caacagaaat	300
ccaacctaga	gctgctccgc	atctccctgc	tgctcatcca	gtcgtggctg	gagcccgtgc	360
agttcctcag	gagtgtcttc	gccaacagcc	tggtgtacgg	cgcctctgac	agcaacgtct	420
atgacctcct	aaaggaccta	gaggaaggca	tccaaacgct	gatggggagg	ctggaagatg	480
gcagcccccg	gactgggcag	atcttcaagc	agacctacag	caagttcgac	acaaactcac	540
acaacgatga	cgcactactc	aagaactacg	ggctgctcta	ctgcttcagg	aaggacatgg	600
acaaggtcga	gacattcctg	cgcatcgtgc	agtgccgctc	tgtggagggc	agctgtggct	660
teggeggeeg	cggtggcgga	ggtagtggtg	gcggaggtag	cggtggcgga	ggttctggtg	720
gcggaggttc	cgaattcttc	ccaaccattc	ccttatccag	gctttttgac	aacgctagtc	780
tccgcgccca	tcgtctgcac	cagctggcct	ttgacaccta	ccaggagttt	gaagaagcct	840
atatcccaaa	ggaacagaag	tattcattcc	tgcagaaccc	ccagacctcc	ctctgtttct	900
cagagtctat	tccgacaccc	tccaacaggg	aggaaacaca	acagaaatcc	aacctagagc	960
tgctccgcat	ctccctgctg	ctcatccagt	cgtggctgga	gcccgtgcag	ttcctcagga	1020
gtgtcttcgc	caacagcctg	gtgtacggcg	cctctgacag	caacgtctat	gacctcctaa	1080
aggacctaga	ggaaggcatc	caaacgctga	tggggaggct	ggaagatggc	agcccccgga	1140

ctgggcagat d	cttcaagcag acct	acagca agttcgaca	nc aaactcacac aacgatga	acg 1200
cactactcaa (gaactacggg ctgc	tctact gcttcagga	aa ggacatggac aaggtcga	aga 1260
cattcctgcg (catcgtgcag tgcc	gctctg tggagggca	ag ctgtggcttc ggcggtg	gag 1320
gggatatcga d	caagctggtc aagt	gtggcg gcataagco	et getggtteag aacacato	cct 1380
ggatgctgct o	getgetgett teec	tctccc tcctccaaç	gc cctagacttc atttctc	igt 1440
ga				1442
<210> 6 <211> 470 <212> PRT <213> Artif	ficial Sequence			
<223> fusio	on protein comp	rising growth ho	ormone fused to growth	n hormone
<400> 6				
Met Asp Leu 1	Trp Gln Leu Le 5	u Leu Thr Leu Al 10	a Leu Ala Gly Ser Se: 15	r
Asp Ala His	Met Phe Pro Th	r Ile Pro Leu Se 25	er Arg Leu Phe Asp Ası 30	า
Ala Ser Leu 35	Arg Ala His Ar	g Leu His Gln Le 40	eu Ala Phe Asp Thr Ty: 45	r
Gln Glu Phe 50	Glu Glu Ala Ty 55	-	u Gln Lys Tyr Ser Pho	€
Leu Gln Asn 65	Pro Gln Thr Se	r Leu Cys Phe Se 75	er Glu Ser Ile Pro Th: 5 80	r
Pro Ser Asn	Arg Glu Glu Th	r Gln Gln Lys Se 90	er Asn Leu Glu Leu Leu 95	1
Arg Ile Ser	Leu Leu Leu Il 100	e Gln Ser Trp Le 105	eu Glu Pro Val Gln Phe 110	<u> </u>
Leu Arg Ser 115	Val Phe Ala As	n Ser Leu Val T <u>y</u> 120	r Gly Ala Ser Asp Se: 125	r

Asn Val Tyr Asp Leu Leu Lys Asp Leu Glu Glu Gly Ile Gln Thr Leu

Met 145	Gly	Arg	Leu	Glu	Asp 150	Gly	Ser	Pro	Arg	Thr 155	Gly	Gln	Ile	Phe	Lys 160
Gln	Thr	Tyr	Ser	Lys 165	Phe	Asp	Thr	Asn	Ser 170	His	Asn	Asp	Asp	Ala 175	Leu
Leu	Lys	Asn	Tyr 180	Gly	Leu	Leu	Tyr	Cys 185	Phe	Arg	Lys	Asp	Met 190	Asp	Lys
Val	Glu	Thr 195	Phe	Leu	Arg	Ile	Val 200	Gln	Суз	Arg	Ser	Val 205	Glu	Gly	Ser
Суз	Gly 210	Phe	Gly	Gly	Arg	Gly 215	Gly	Gly	Gly	Ser	Gly 220	Gly	Gly	Gly	Ser
Gly 225	Gly	Gly	Gly	Ser	Gly 230	Gly	Gly	Gly	Ser	Glu 235	Phe	Phe	Pro	Thr	Ile 240
Pro	Leu	Ser	Arg	Leu 245	Phe	Asp	Asn	Ala	Ser 250	Leu	Arg	Ala	His	Arg 255	Leu
His	Gln	Leu	Ala 260	Phe	Asp	Thr	Tyr	Gln 265	Glu	Phe	Glu	Glu	Ala 270	Tyr	Ile
Pro	Lys	Glu 275	Gln	Lys	Tyr	Ser	Phe 280	Leu	Gln	Asn	Pro	Gln 285	Thr	Ser	Leu
Cys	Phe 290	Ser	Glu	Ser	Ile	Pro 295	Thr	Pro	Ser	Asn	Arg 300	Glu	Glu	Thr	Gln
Gln 305	Lys	Ser	Asn	Leu	Glu 310	Leu	Leu	Arg	Ile	Ser 315	Leu	Leu	Leu	Ile	Gln 320
Ser	Trp	Leu	Glu	Pro 325	Val	Gln	Phe	Leu	Arg 330	Ser	Val	Phe	Ala	Asn 335	Ser
Leu	Val	Tyr	Gly 340	Ala	Ser	Asp	Ser	Asn 345	Val	Tyr	Asp	Leu	Leu 350	Lys	Asp
Leu	Glu	Glu	Gly	Ile	Gln	Thr	Leu	Met	Gly	Arg	Leu	Glu	Asp	Gly	Ser

```
Pro Arg Thr Gly Gln Ile Phe Lys Gln Thr Tyr Ser Lys Phe Asp Thr
   370
Asn Ser His Asn Asp Asp Ala Leu Leu Lys Asn Tyr Gly Leu Leu Tyr
                    395
385
               390
Cys Phe Arg Lys Asp Met Asp Lys Val Glu Thr Phe Leu Arg Ile Val
            405
                   410 415
Gln Cys Arg Ser Val Glu Gly Ser Cys Gly Phe Gly Gly Gly Asp
              425
        420
Ile Asp Lys Leu Val Lys Cys Gly Gly Ile Ser Leu Leu Val Gln Asn
     435
                      440
Thr Ser Trp Met Leu Leu Leu Leu Ser Leu Ser Leu Gln Ala
   450
           455
                                   460
Leu Asp Phe Ile Ser Leu
465
              470
<210> 7
<211> 29
<212> DNA
<213> Artificial Sequence
<220>
<223> growth hormone receptor primer
<400> 7
gcgcggatcc tctagactcg aggtcctac
                                                              29
<210> 8
<211> 29
<212> DNA
<213> Artificial Sequence
<220>
<223> growth hormone receptor primer
<400> 8
                                                              29
gcgccatatg agcatcactt gatcctgcg
<210> 9
<211> 30
<212> DNA
```

<213> Artificial Sequence

<220>
<223> primer amplification of human growth hormone
<400> 9
gegecatatg tteccaacca tteeettate

SEQUENCE LISTING

<110>	Ross, Richard	
	Sayers, Jon	
	Artymiuk, Peter	
<120>	Cytokine Polypeptides and Antiboidies Containing A Signal	
	Sequence for the Attachment of Glycosylphosphatidyinositol	
<130>	100042.59316US	
<140>	10522388	
<141>	2009-04-14	
<150>	10/552,388	
<151>	2005-10-07	
<150>	PCT/GB04/001572	
<151>	2004-04-07	
<150>	GB 0324235.1	
<151>	2003-10-16	
<150>		
<151>	2003-04-09	
<160>	29	
-170-		
<170>	PatentIn version 3.5	
<210>	1	
<211>	794	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	fusion protein comprising growth hormone fused to domain	
	comprising glycosylphosphatidyinositol	
<400>	1	
ggatcc	tcta gactcgaggt cctacaggta tggatctctg gcagctgctg ttgaccttgg	60
cactgg	cagg atcaagtgat geteatatgt teecaaceat teeettatee aggetttttg	120
		7 0 0
acaacg	ctag teteegegee categtetge accagetgge etttgacace taccaggagt	180
++α>>α	aagc ctatatccca aaggaacaga agtattcatt cctgcagaac ccccagacct	240
ttgaag	aage craraceeda aaggaacaga agraricari eergeagaac eeeeagaeer .	240
ccctctc	gttt ctcagagtct attccgacac cctccaacag ggaggaaaca caacagaaat	300
000000	geee dedagageee accordance decodadag ggaggaaada daadagaaac	500
ccaacc	taga getgeteege ateteeetge tgeteateea gtegtggetg gageeegtge	360
agttcc	tcag gagtgtcttc gccaacagcc tggtgtacgg cgcctctgac agcaacgtct	420
atgacc	tcct aaaggaccta gaggaaggca tccaaacgct gatggggagg ctggaagatg	480

gcagcccccg gactgggcag atcttcaagc agacctacag caagttcgac acaaactcac 540

acaacgatga cgcactactc aagaactacg ggctgctcta ctgcttcagg aaggacatgg	600
acaaggtega gacatteetg egeategtge agtgeegete tgtggaggge agetgtgget	660
tcggcggtgg aggggatatc gacaagctgg tcaagtgtgg cggcataagc ctgctggttc	720
agaacacatc ctggatgctg ctgctgctgc tttccctctc cctcctcaa gccctagact	780
tcatttctct gtga	794
<210> 2 <211> 254	
<211> 234 <212> PRT	
<213> Artificial Sequence	
<220>	
<223> fusion protein comprising growth hormone fused to a	
glycosylphosphatidyinositol domain	
<400> 2	
Met Asp Leu Trp Gln Leu Leu Thr Leu Ala Leu Ala Gly Ser Ser	
1 5 10 15	
Asp Ala His Met Phe Pro Thr Ile Pro Leu Ser Arg Leu Phe Asp Asn	
20 25 30	
Ala Ser Leu Arg Ala His Arg Leu His Gln Leu Ala Phe Asp Thr Tyr	
35 40 45	
Gln Glu Phe Glu Glu Ala Tyr Ile Pro Lys Glu Gln Lys Tyr Ser Phe	
50 55 60	
Leu Gln Asn Pro Gln Thr Ser Leu Cys Phe Ser Glu Ser Ile Pro Thr	
65 70 75 80	
Pro Ser Asn Arg Glu Glu Thr Gln Gln Lys Ser Asn Leu Glu Leu Leu	
85 90 95 	
Arg Ile Ser Leu Leu Ile Gln Ser Trp Leu Glu Pro Val Gln Phe	
100 105 110	
Leu Arg Ser Val Phe Ala Asn Ser Leu Val Tyr Gly Ala Ser Asp Ser 115 120 125	

Asn Val Tyr Asp Leu Leu Lys Asp Leu Glu Glu Gly Ile Gln Thr Leu

Met Gly Arg Leu Glu Asp Gly Ser Pro Arg Thr Gly Gln Ile Phe Lys 145 150 155 160
Gln Thr Tyr Ser Lys Phe Asp Thr Asn Ser His Asn Asp Asp Ala Leu 165 170 175
Leu Lys Asn Tyr Gly Leu Leu Tyr Cys Phe Arg Lys Asp Met Asp Lys 180 185 190
Val Glu Thr Phe Leu Arg Ile Val Gln Cys Arg Ser Val Glu Gly Ser 195 200 205
Cys Gly Phe Gly Gly Gly Asp Ile Asp Lys Leu Val Lys Cys Gly 210 215 220
Gly Ile Ser Leu Leu Val Gln Asn Thr Ser Trp Met Leu Leu Leu Leu 230 235 240
Leu Ser Leu Ser Leu Leu Gln Ala Leu Asp Phe Ile Ser Leu 245 250
<210> 3 <211> 1607 <212> DNA <213> Artificial Sequence
<220> <223> fusion protein comprising growth hormone fused to growth hormone receptor
<400> 3 ggatcctcta gactcgaggt cctacaggta tggatctctg gcagctgctg ttgaccttgg 60
cactggcagg atcaagtgat gctcatatgt tcccaaccat tcccttatcc aggctttttg 120
acaacgctag tctccgcgcc catcgtctgc accagctggc ctttgacacc taccaggagt 180
ttgaagaagc ctatatccca aaggaacaga agtattcatt cctgcagaac ccccagacct 240
ccctctgttt ctcagagtct attccgacac cctccaacag ggaggaaaca caacagaaat 300
ccaacctaga getgeteege atetecetge tgeteateea gtegtggetg gageeegtge 360
agttcctcag gagtgtcttc gccaacagcc tggtgtacgg cgcctctgac agcaacgtct 420
atgaceteet aaaggaceta gaggaaggea tecaaaeget gatggggagg etggaagatg 480

gcagcccccg gactgggcag atcttcaagc agacctacag caagttcgac acaaactcac 540

acaacgatga	cgcactactc	aagaactacg	ggctgctcta	ctgcttcagg	aaggacatgg	600
acaaggtcga	gacattcctg	cgcatcgtgc	agtgccgctc	tgtggagggc	agctgtggct	660
teggeggeeg	cggtggcgga	ggtagtggtg	gcggaggtag	cggtggcgga	ggttctggtg	720
gcggaggttc	cgaattcttt	tctggaagtg	aggccacagc	agctatcctt	agcagagcac	780
cctggagtct	gcaaagtgtt	aatccaggcc	taaagacaaa	ttcttctaag	gagcctaaat	840
tcaccaagtg	ccgttcacct	gagcgagaga	ctttttcatg	ccactggaca	gatgaggttc	900
atcatggtac	aaagaaccta	ggacccatac	agctgttcta	taccagaagg	aacactcaag	960
aatggactca	agaatggaaa	gaatgccctg	attatgtttc	tgctggggaa	aacagctgtt	1020
actttaattc	atcgtttacc	tccatctgga	taccttattg	tatcaagcta	actagcaatg	1080
gtggtacagt	ggatgaaaag	tgtttctctg	ttgatgaaat	agtgcaacca	gatccaccca	1140
ttgccctcaa	ctggacttta	ctgaacgtca	gtttaactgg	gattcatgca	gatatccaag	1200
tgagatggga	agcaccacgc	aatgcagata	ttcagaaagg	atggatggtt	ctggagtatg	1260
aacttcaata	caaagaagta	aatgaaacta	aatggaaaat	gatggaccct	atattgacaa	1320
catcagttcc	agtgtactca	ttgaaagtgg	ataaggaata	tgaagtgcgt	gtgagatcca	1380
aacaacgaaa	ctctggaaat	tatggcgagt	tcagtgaggt	gctctatgta	acacttcctc	1440
agatgagcca	atttacatgt	gaagaagatt	tctacggcgg	tggaggggat	atcgacaagc	1500
tggtcaagtg	tggcggcata	agectgctgg	ttcagaacac	atcctggatg	ctgctgctgc	1560
tgctttccct	ctccctcctc	caagccctag	acttcatttc	tctgtga		1607

<210> 4

<211> 525

<212> PRT

<213> Artificial Sequence

<220>

 $<\!\!223\!\!>$ fusion protein comprising growth hormone fused to growth hormone receptor

<400> 4

Met Asp Leu Trp Gln Leu Leu Leu Thr Leu Ala Leu Ala Gly Ser Ser $1 \hspace{1.5cm} 5 \hspace{1.5cm} 10 \hspace{1.5cm} 15$

Asp Ala His Met Phe Pro Thr Ile Pro Leu Ser Arg Leu Phe Asp Asn 20 25 30

Ala	Ser	Leu 35	Arg	Ala	His	Arg	Leu 40	His	Gln	Leu	Ala	Phe 45	Asp	Thr	Tyr
Gln	Glu 50	Phe	Glu	Glu	Ala	Tyr 55	Ile	Pro	Lys	Glu	Gln 60	Lys	Tyr	Ser	Phe
Leu 65	Gln	Asn	Pro	Gln	Thr 70	Ser	Leu	Суз	Phe	Ser 75	Glu	Ser	Ile	Pro	Thr 80
Pro	Ser	Asn	Arg	Glu 85	Glu	Thr	Gln	Gln	Lys 90	Ser	Asn	Leu	Glu	Leu 95	Leu
Arg	Ile	Ser	Leu 100	Leu	Leu	Ile	Gln	Ser 105	Trp	Leu	Glu	Pro	Val 110	Gln	Phe
		115					120					125	Ser		
	130	_				135					140		Gln		
145					150					155			Ile		160
		-		165		-			170			-	Met	175	
			180					185					190 Glu		
		195					200					205	Gly		
_	210					215					220		Ser		
225					230					235			Leu		240
				245				-	250		-			255	

Val Asn Pro Gly Leu Lys Thr Asn Ser Ser Lys Glu Pro Lys Phe Thr

260 265 270

Lys Cys Arg Ser Pro Glu Arg Glu Thr Phe Ser Cys His Trp Thr Asp 275 280 285 Glu Val His His Gly Thr Lys Asn Leu Gly Pro Ile Gln Leu Phe Tyr 295 Thr Arg Arg Asn Thr Gln Glu Trp Thr Gln Glu Trp Lys Glu Cys Pro 305 310 315 320 Asp Tyr Val Ser Ala Gly Glu Asn Ser Cys Tyr Phe Asn Ser Ser Phe 325 330 335 Thr Ser Ile Trp Ile Pro Tyr Cys Ile Lys Leu Thr Ser Asn Gly Gly 340 345 350 Thr Val Asp Glu Lys Cys Phe Ser Val Asp Glu Ile Val Gln Pro Asp 355 360 365 Pro Pro Ile Ala Leu Asn Trp Thr Leu Leu Asn Val Ser Leu Thr Gly 375 380 370 Ile His Ala Asp Ile Gln Val Arg Trp Glu Ala Pro Arg Asn Ala Asp 390 395 385 Ile Gln Lys Gly Trp Met Val Leu Glu Tyr Glu Leu Gln Tyr Lys Glu 405 410 415 Val Asn Glu Thr Lys Trp Lys Met Met Asp Pro Ile Leu Thr Thr Ser 420 425 430 Val Pro Val Tyr Ser Leu Lys Val Asp Lys Glu Tyr Glu Val Arg Val 435 440 Arg Ser Lys Gln Arg Asn Ser Gly Asn Tyr Gly Glu Phe Ser Glu Val 450 455 460 Leu Tyr Val Thr Leu Pro Gln Met Ser Gln Phe Thr Cys Glu Glu Asp 475 480 470 465

Phe Tyr Gly Gly Gly Asp Ile Asp Lys Leu Val Lys Cys Gly Gly

490

485

Ile Ser Leu Leu Val Gln Asn Thr Ser Trp Met Leu Leu Leu Leu Leu 500 505 510

Ser Leu Ser Leu Leu Gln Ala Leu Asp Phe Ile Ser Leu 515 520 525

<210> 5

<211> 1442

<212> DNA

<213> Artificial Sequence

<220>

<223> fusion protein comprising growth hormone fused to growth hormone

<400> 5

<400> 5						
ggatcctcta	gactcgaggt	cctacaggta	tggatctctg	gcagctgctg	ttgaccttgg	60
cactggcagg	atcaagtgat	gctcatatgt	tcccaaccat	tcccttatcc	aggctttttg	120
acaacgctag	teteegegee	catcgtctgc	accagctggc	ctttgacacc	taccaggagt	180
ttgaagaagc	ctatatccca	aaggaacaga	agtattcatt	cctgcagaac	ccccagacct	240
ccctctgttt	ctcagagtct	attccgacac	cctccaacag	ggaggaaaca	caacagaaat	300
ccaacctaga	gctgctccgc	atctccctgc	tgctcatcca	gtcgtggctg	gagcccgtgc	360
agttcctcag	gagtgtcttc	gccaacagcc	tggtgtacgg	cgcctctgac	agcaacgtct	420
atgacctcct	aaaggaccta	gaggaaggca	tccaaacgct	gatggggagg	ctggaagatg	480
gcagcccccg	gactgggcag	atcttcaagc	agacctacag	caagttcgac	acaaactcac	540
acaacgatga	cgcactactc	aagaactacg	ggctgctcta	ctgcttcagg	aaggacatgg	600
acaaggtcga	gacattcctg	cgcatcgtgc	agtgccgctc	tgtggagggc	agctgtggct	660
teggeggeeg	cggtggcgga	ggtagtggtg	gcggaggtag	cggtggcgga	ggttctggtg	720
gcggaggttc	cgaattcttc	ccaaccattc	ccttatccag	gctttttgac	aacgctagtc	780
teegegeeca	tcgtctgcac	cagctggcct	ttgacaccta	ccaggagttt	gaagaagcct	840
atatcccaaa	ggaacagaag	tattcattcc	tgcagaaccc	ccagacctcc	ctctgtttct	900
cagagtctat	teegaeaeee	tccaacaggg	aggaaacaca	acagaaatcc	aacctagagc	960
tgctccgcat	ctccctgctg	ctcatccagt	cgtggctgga	gcccgtgcag	ttcctcagga	1020
gtgtcttcgc	caacagcctg	gtgtacggcg	cctctgacag	caacgtctat	gacctcctaa	1080
aggacctaga	ggaaggcatc	caaacgctga	tggggaggct	ggaagatggc	agcccccgga	1140

ctgggcagat	cttcaagcag a	cctacagca agi	ttcgacac aaa	ctcacac aacg	atgacg 1200
cactactcaa	gaactacggg ct	gctctact gc	ttcaggaa gga	catggac aagg	tcgaga 1260
cattcctgcg	catcgtgcag to	geegetetg tgo	gagggcag ctg	tggcttc ggcg	gtggag 1320
gggatatcga	caagctggtc aa	agtgtggcg gc	ataagcct gct	ggttcag aaca	catcct 1380
ggatgctgct	gctgctgctt to	ccctctccc tc	ctccaagc cct	agacttc attt	ctctgt 1440
ga					1442
<210> 6 <211> 470 <212> PRT <213> Arti	ficial Sequen	nce			
<223> fusi	on protein co	omprising gro	owth hormone	fused to gr	owth hormone
<400> 6					
Met Asp Leu 1	Trp Gln Leu 5	Leu Leu Thr	Leu Ala Leu 10	Ala Gly Ser 15	Ser
Asp Ala His	Met Phe Pro 20	Thr Ile Pro 25	Leu Ser Arg	Leu Phe Asp	Asn
Ala Ser Leu 35	Arg Ala His	Arg Leu His	Gln Leu Ala	Phe Asp Thr	Tyr
Gln Glu Phe 50	Glu Glu Ala	Tyr Ile Pro 55	Lys Glu Gln 60	Lys Tyr Ser	Phe
Leu Gln Asn 65	Pro Gln Thr 70	Ser Leu Cys	Phe Ser Glu 75	Ser Ile Pro	Thr 80
Pro Ser Asn	Arg Glu Glu 85	Thr Gln Gln	Lys Ser Asn 90	Leu Glu Leu 95	Leu
Arg Ile Ser	Leu Leu Leu 100	Ile Gln Ser 105	Trp Leu Glu	Pro Val Gln 110	Phe
Leu Arg Ser 115		Asn Ser Leu 120	Val Tyr Gly	Ala Ser Asp	Ser

Asn Val Tyr Asp Leu Leu Lys Asp Leu Glu Glu Gly Ile Gln Thr Leu

Met 145	Gly	Arg	Leu	Glu	Asp 150	Gly	Ser	Pro	Arg	Thr 155	Gly	Gln	Ile	Phe	Lys 160
Gln	Thr	Tyr	Ser	Lys 165	Phe	Asp	Thr	Asn	Ser 170	His	Asn	Asp	Asp	Ala 175	Leu
Leu	Lys	Asn	Tyr 180	Gly	Leu	Leu	Tyr	Cys 185	Phe	Arg	Lys	Asp	Met 190	Asp	Lys
Val	Glu	Thr 195	Phe	Leu	Arg	Ile	Val 200	Gln	Суз	Arg	Ser	Val 205	Glu	Gly	Ser
Суз	Gly 210	Phe	Gly	Gly	Arg	Gly 215	Gly	Gly	Gly	Ser	Gly 220	Gly	Gly	Gly	Ser
Gly 225	Gly	Gly	Gly	Ser	Gly 230	Gly	Gly	Gly	Ser	Glu 235	Phe	Phe	Pro	Thr	Ile 240
Pro	Leu	Ser	Arg	Leu 245	Phe	Asp	Asn	Ala	Ser 250	Leu	Arg	Ala	His	Arg 255	Leu
His	Gln	Leu	Ala 260	Phe	Asp	Thr	Tyr	Gln 265	Glu	Phe	Glu	Glu	Ala 270	Tyr	Ile
Pro	Lys	Glu 275	Gln	Lys	Tyr	Ser	Phe 280	Leu	Gln	Asn	Pro	Gln 285	Thr	Ser	Leu
Cys	Phe 290	Ser	Glu	Ser	Ile	Pro 295	Thr	Pro	Ser	Asn	Arg 300	Glu	Glu	Thr	Gln
Gln 305	Lys	Ser	Asn	Leu	Glu 310	Leu	Leu	Arg	Ile	Ser 315	Leu	Leu	Leu	Ile	Gln 320
Ser	Trp	Leu	Glu	Pro 325	Val	Gln	Phe	Leu	Arg 330	Ser	Val	Phe	Ala	Asn 335	Ser
Leu	Val	Tyr	Gly 340	Ala	Ser	Asp	Ser	Asn 345	Val	Tyr	Asp	Leu	Leu 350	Lys	Asp
Leu	Glu	Glu	Gly	Ile	Gln	Thr	Leu	Met	Gly	Arg	Leu	Glu	Asp	Gly	Ser

```
Pro Arg Thr Gly Gln Ile Phe Lys Gln Thr Tyr Ser Lys Phe Asp Thr
   370
Asn Ser His Asn Asp Asp Ala Leu Leu Lys Asn Tyr Gly Leu Leu Tyr
                    395
385
               390
Cys Phe Arg Lys Asp Met Asp Lys Val Glu Thr Phe Leu Arg Ile Val
            405
                   410 415
Gln Cys Arg Ser Val Glu Gly Ser Cys Gly Phe Gly Gly Gly Asp
              425
        420
Ile Asp Lys Leu Val Lys Cys Gly Gly Ile Ser Leu Leu Val Gln Asn
     435
                      440
Thr Ser Trp Met Leu Leu Leu Leu Ser Leu Ser Leu Gln Ala
   450
           455
                                   460
Leu Asp Phe Ile Ser Leu
465
              470
<210> 7
<211> 29
<212> DNA
<213> Artificial Sequence
<220>
<223> growth hormone receptor primer
<400> 7
gcgcggatcc tctagactcg aggtcctac
                                                              29
<210> 8
<211> 29
<212> DNA
<213> Artificial Sequence
<220>
<223> growth hormone receptor primer
<400> 8
                                                              29
gcgccatatg agcatcactt gatcctgcg
<210> 9
<211> 30
<212> DNA
```

<213> Artificial Sequence

<220>
<223> primer amplification of human growth hormone
<400> 9
gegecatatg tteccaacca tteeettate